

## REMARKS

A Final Rejection was mailed in the present case on September 21, 2006, rejecting Claims 1 and 6. Claims 7-11 had previously been withdrawn pursuant to a Restriction Requirement. This Response is being submitted, along with a Petition For Extension of Time Within the Third Month and the required extension fee, in addition to the Request For Continued Prosecution.

As explained in some detail in Applicant's previous Response in the case, Applicant's invention provides one solution to the problem of environmental degradation of the sealing gaskets used in plastic pipe systems, such as water and sewer pipes used in the municipal water works industries. The gaskets which are used as the sealing elements in such systems are subjected to attack by any of a number of environmental contaminants. These include, oil and hydrocarbons, sunlight, ozone, chemicals, etc. In order to ensure the sealing integrity of such systems, it is necessary to certify that the gaskets in question meet, for example, oil resistance standards as set out in ASTM C361.

In the prior art, the ASTM standard has generally been met by providing a sealing gasket formed of a material which is itself resistant to oil and other environmental contaminants. This provides a satisfactory solution to the problem, but has the disadvantage that the more exotic rubber formulations, such as nitrile rubber, are more expensive.

Applicant's invention addresses the problem of providing a sealing gasket which will meet the requisite ASTM standard for oil resistance by providing a specific type of coating for the gasket. Since the inner gasket body is no longer exposed to the environment, a less expensive rubber formulation can be used to form the body, for example SBR. Applicant's coating provides a gasket with oil, chemical and environmental similar to nitrile rubber at a fraction of the cost.

Applicant has found that a class of synthetic coatings can be utilized in coating applications of the type under consideration. The preferred class of gasket coatings of the invention are nylon coatings. A particularly preferred commercially available nylon coating is sold under the brand name RILSAN®, available from Atofina Corporation of Paris, France. RILSAN® is the Atofina brandname for the polyamides 6, 11 and 12 family of nylon polymers.

In the latest Office Action, the Examiner rejected Applicant's dependent Claim 6 under 35 U.S.C. §112 as failing to have support for the phrase "entire exterior surface of the gasket." Applicant has accordingly amended Claim 6 to remove the offending language, replacing it with the original claim

language.

The Examiner has also substantively rejected Applicant's remaining Claims 1 and 6 under 35 U.S.C. §103(a) based upon Corbett, Jr. (6,328,309) in view of Ulschmid (5,361,567) and further in view of JP2001-182837 (JP 837). The '309 reference is cited to show a spray on anti-friction coating and the suggestion that the coatings being utilized could include nylon (Col. 3, lines 55-60 of Corbett, Jr.). JP 837 is cited to show the use of a nylon coating on a gasket to provide oil and heat resistance. The Examiner also rejected Claims 1 and 6 under 35 U.S.C. §103(a) based upon Corbett, Jr. (6,328,309) and Corbett, Jr. (6,676,886) in view of Ulschmid (5,361,567) and further in view of JP2001-182837 (JP 837). The second Corbett, Jr. reference ('886) is cited to show the various steps involved in a Rieber type pipe belling process of installing a gasket in the socket end of a thermoplastic pipe.

Applicant's remaining independent Claim 1 can be seen to have at least the following combination of features which are being argued for patentability: (1) the gaskets of the invention are "coated in a dip coating process" with an external coating; (2) "wherein the coating is selected from the group consisting of Polyamide 6, Polyamide 11 and Polyamide 12 nylon coatings"; and (3) the coating process is described as being "effective to provide oil resistance which is at least that of nitrile rubber at a fraction of the cost of a nitrile rubber gasket, thereby allowing a less expensive material to be used in a product with characteristics equivalent to a more expensive material." These features are contained within the additional language of the claim which describes a "Rieber" style pipe belling process for plastic pipe in which a heated pipe end is forced over a special forming mandrel that initially positions the gasket. At the end of the process, the gasket is pre-seated within an internal groove provided within the female or "bell" pipe end.

The amended claims are not rendered obvious by even a combination of the cited art for several reasons, as will be apparent in the discussion which follows.

There is more involved in Applicant's invention than the mere discovery of a coating which will provide "environmental protection" for any type of gasket product, such as the seal or diaphragm used a fuel supply system of a vehicle, as taught in the JP 837 reference. As explained in Applicant's Specification, the Rieber pipe belling process places a number of constraints on what would or would not be an acceptable material (or coating) for a gasket. The wrong type of gasket material, or coating on the gasket, would produce undue friction during the belling process, in some cases causing the heated pipe end to fail to travel over the mandrel, or resulting in an imperfect internal

groove being formed in the interior of the female pipe end. If too much friction were created, the gasket could be pulled from its position on the forming mandrel and “drug along” the mandrel by the hot pipe end.

Thus, even though it may be known to use nylon coatings for gaskets in the automotive or other unrelated industries, it would not have been obvious to one skilled in the pipe belling arts that a nylon coated gasket would be acceptable in the Rieber type belling operation.

In addition to the forces involved in the actual belling process and the fact that Applicant has found a coating which works in such an environment, the coatings of the invention must also pass a number of industry specifications. The specifications for the pipe (waterworks) industry may be entirely different from those in such an industry as the automotive industry. For example, an automotive diaphragm in the fuel system would not pose any danger of contaminating a potable water supply. Applicant’s gaskets, on the other hand, are used in municipal water applications and cannot have toxic or otherwise harmful properties for people drinking the water.

Applicant’s particular class of coating material has been found to provide excellent bonding to rubber. It also has the flexibility and elasticity required to withstand rubber deformation in the belling process. Sealability within the ultimate pipe joint is not adversely affected in any way. The coated gaskets comply with the ASTM C361 requirement for oil resistance, one of the main requirements which must be met for U.S. applications. Applicant is including as an attachment to this Response a graph of oil resistance which compares the coated gaskets of the invention to nitrile rubber compounds and to an untreated polyisoprene compound. The coating of the invention can be seen to provide oil resistance similar to the nitrile sewer compound. The additional attachment to this Response shows the other characteristics of the coatings of the invention which, in each case, complies with the applicable industry standard or test.

A *prima facie* case of obviousness is established when the teachings of the prior art itself suggest the claimed subject matter to a person of ordinary skill in the art. *In re Bell*, 991 F.2d 781, 783, 26 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1993). To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed invention and the reasonable

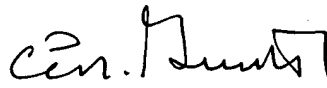
expectation of success must both be found in the prior art, and not based on Appellant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). MPEP § 2142.

Applicant would respectfully submit that the Examiner has failed to provide a prima facie case of obviousness as defined above. Applicant has described a suitable gasket coating which will accomplish the stated objectives of the invention. Accordingly, Applicant should be allowed a claim of commensurate scope.

Reconsideration of Claims 1 and 6 is requested in view of the above arguments and amendments.

If any additional fees are seen to be due, the Commissioner is hereby authorized to charge such fees, or credit any overpayment to Deposit Account 50-2555 (Whitaker, Chalk et al.)

Respectfully submitted,



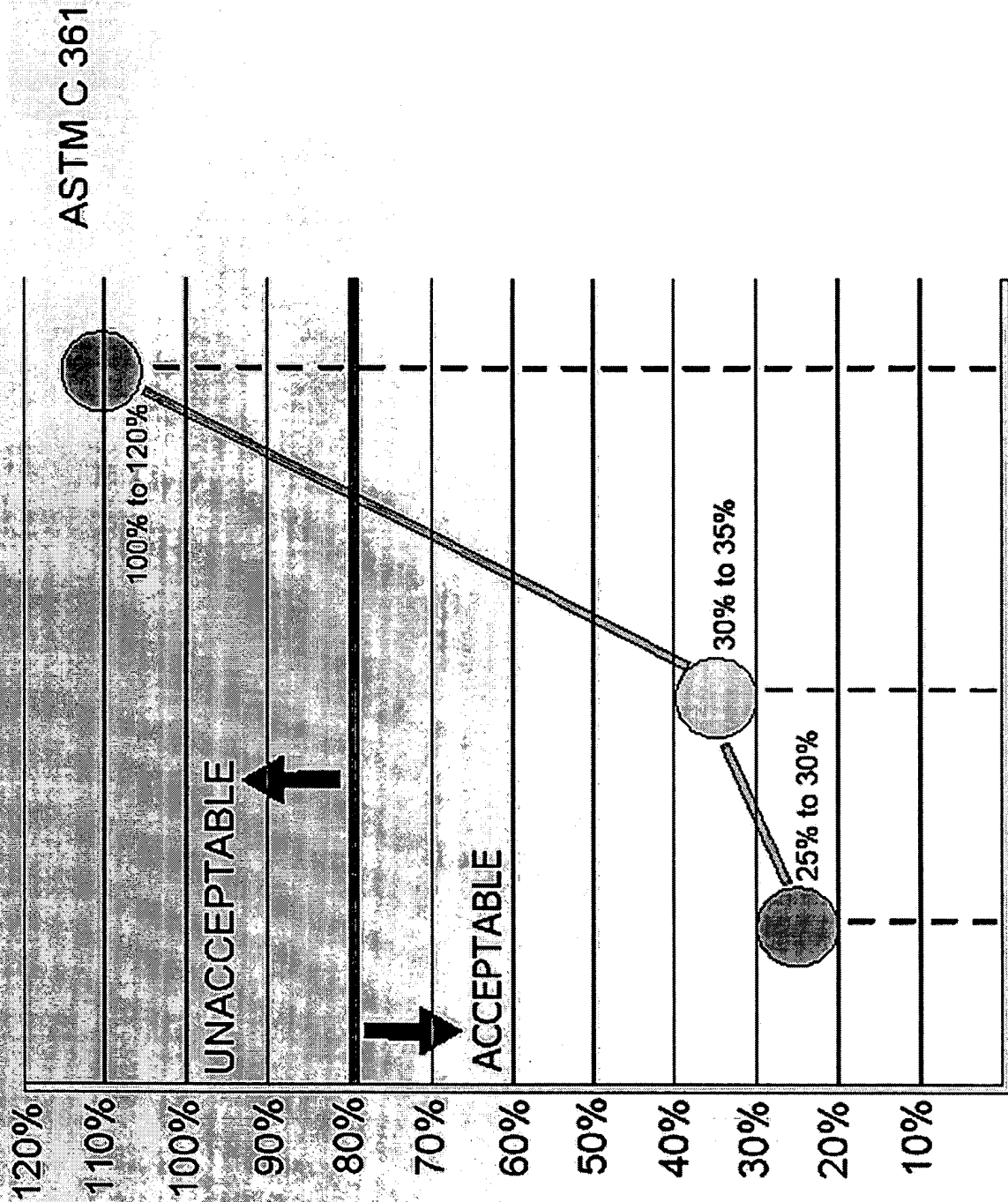
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ATTORNEY(S) FOR APPLICANT

OIL RESISTANCE  
COMPARATIVE CHART

VOLUME CHANGE (%)



ASTM C 361

COATED NITRILE SEWER POLYISOPRENE  
GASKET COMPOUND  
(HT 4527)



# Physical properties of coated gaskets

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Variable	Units	ASTM Method	Specification	Test Results
Low Temperature flexibility at -25 °C	Appearance	D746	No cracks / No blisters	COMPLIES No cracks / No Film disbondment
Ozone resistance at 40 °C 50 pphm 20% elong for 120 h	Appearance	D1149	No cracks	COMPLIES No cracks
Accelerated aging 96 h at 70 °C	Appearance	D573	No cracks / No blisters	COMPLIES No cracks / No blisters
Tensile set 1 min. 100% elongation	Appearance	D412	No film disbondment/No cracks	COMPLIES No film disbondment / No cracks
Water immersion 48 h at 70 °C, Volume change	%	D 471	5 max	COMPLIES 1.5%
Water immersion 7 days at 70 °C, Volume change	%	ISO 1817	+8 to -1	COMPLIES 5
Weatherability and color stability (500 hrs exposure)	Appearance	ASTM G154	No staining / No yellowing / No cracks	COMPLIES No staining / No yellowing / No cracks